

## REMARKS

Applicant has studied the Office Action dated June 1, 2004. Claims 1-9 and 20-25 are pending. Claims 10-19 have been canceled without prejudice in response to a previous restriction requirement. Reconsideration and allowance of the pending claims in view of the above amendments and the following remarks are respectfully requested. Reconsideration and allowance of the pending claims in view of the above amendments and the following remarks are respectfully requested. In the Office Action, the Examiner:

- (2) objected to drawings under 37 CFR 1.83(a) because the feature in claims 1 “an output buffer” is not shown;
- (3) rejected the abstract because it exceeds 150 words in length;
- (4-5) rejected claims 6-8 under 35 U.S.C. § 112, second paragraph, as being indefinite for insufficient antecedent basis;
- (7) rejected claims 1-3, 9, 20, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Tsujii et al (US Patent No. 4,397,042) in view of Williamson et al (US Patent No. 5,659,299);
- (8) rejected claims 4, 21, and 24 under 35 U.S.C. § 103(a) as being unpatentable over Tsujii et al (US Patent No. 4,397,042) in view of Williamson et al (US Patent No. 5,659,299) and further view of Prior Art Figure 1; and
- (9) rejected claims 5-8, 22, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Tsujii et al (US Patent No. 4,397,042) in view of Williamson et al (US Patent No. 5,659,299) and in further view of Haartsen et al. (US Patent No. 6,519,236).

### (2) IN THE DRAWINGS

As noted above, the Examiner objected to drawings under 37 CFR 1.83(a) because the feature in claim 1 “an output buffer” is not shown. This feature has been amended in claim 1 to recited an optical transmitter which is clearly shown in FIG. 5 in the IRDA Hardware 504A, 504B, 504C, 504D and the IR Transmitter Hardware. Accordingly, the Applicant submits that the Examiner’s objection to the drawings has been overcome.

Further, FIG. 6 has been amended to properly illustrate the arrows from decision block 604 to block 606 to correctly denote the flow. Similarly FIG. 7 has been amended to properly illustrate the arrow

from decision block 706 to block 708 to correctly denote the flow. No new matter has been added and the Examiner's rejection should be withdrawn.

### (3) IN THE ABSTRACT

As noted above, the Examiner rejected the abstract because it exceeds 150 words in length. Please delete the abstract in its entirety and substitute the new abstract attached hereto. The Amended abstract is less than 150 words in length. Accordingly, the Applicant submits that the Examiner's objection to the Abstract has been overcome and the Examiner's rejection should be withdrawn.

### (4-5) REJECTION UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

As noted above, the Examiner rejected claims 6-8 under 35 U.S.C. § 112, second paragraph, as being indefinite for insufficient antecedent basis. Claims 6, 7, and 8 have been carefully amended to correct any antecedent basis problems. Accordingly, the Applicant submits that the Examiner's objection to claims 6-8 has been overcome and the Examiner's rejection should be withdrawn.

### OVERVIEW OF THE CURRENT INVENTION

Preferred Embodiments of the present invention provide an improved method, apparatus and computer readable medium for extending an effective communications distance of a wireless optical transmitter attached to a mobile device without changing the hardware of the mobile device. The present invention makes use of a range extender application or device driver which receives from a user application, the message bits to be transmitted over a wireless optical transmitter. The range extender application converts each message bit received into a set of a plurality of optical transmission pulses. In one embodiment, the set of optical transmission pulses is represented by a plurality of repetitive identical pulses each corresponding to the message bit. For example, if a single message bit with a binary value of "1", the extender application converts this single value into a plurality of values such as eight binary "1" i.e. 11111111. Stated differently, the present invention using a software driver to convert each message bit received by the user application to a series of message bits in order to improve noise immunity over further transmission distances.

In order to more particularly point out this feature of using a software driver takes each message bit to be sent from a wireless optical transmitter and replaces the message bit with a series of message bits, the following language has been added to the independent claims, i.e., claims 1, 3, 20 and 23 as follows:

- Claim 1

a mobile communication device with at least one associated optical transmitter and an optical receiver coupled thereto;

at least one software application capable of executing on the mobile device and communicating a plurality of message bits to at least one external device using the optical transmitter and the optical receiver;

at least one transmit stack coupled to the optical transmitter so that a bit placed in the transmitter stack is transmitted out the optical transmitter;

a range extender application which executes without any hardware modification to the mobile device, the range extender application operable for extending a physical range of at least the optical transmitter by taking each message bit sent by the software application and converting the message bit to a set of a plurality of optical transmission pulses to be placed on the transmit stack for optical transmission via the optical transmitter to the external device.

- Claim 3

a device for receiving user inputs;

at least one infrared transmitter and at least one infrared receiver associated with the device;

at least one software application capable of executing on the device and communicating a plurality of message bits to at least one external device using the infrared transmitter;

at least one transmit stack coupled to the infrared transmitter so that a bit placed in the transmitter stack is transmitted out the infrared transmitter; and

a range extender application which executes without any hardware modification to the device, the range extender application operable for extending the physical range of at least the optical transmitter by taking each message bit sent by the software application and converting the message bit to a set of a plurality of optical transmission pulses to be placed

on the transmit stack for optical transmission via the infrared transmitter to the external device.

• Claims 20 and 23

receiving user inputs on the user device;

transmitting optical data as signals from an optical transmitter associated with the device, whereby the optical data corresponds to a plurality of message bits sent by at least one software application executing on the user device; and

executing a range extender application which executes without any hardware modification to the user device, the range extender application operable for extending a physical range of the optical transmitter by taking each message bit sent by the software application and converting the message bit to a set of a plurality of optical transmission pulses to be placed on a transmit stack for transmission via the optical transmitter to another device.

Support for this amendment is found in the specification as originally filed FIGs. 5-7 and pages 8-12.

Rejection under 35 U.S.C. §103(a) Tsujii in view of Williamson

As noted above, the Examiner rejected claims 1-3, 9, 20, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Tsujii et al (US Patent No. 4,397,042) in view of Williamson et al (US Patent No. 5,659,299). The Examiner goes on to combine Tsujii with Williamson.<sup>1</sup> To clarify the present invention over Tsujii and/or Williamson, the Applicant has amended independent claims 1, 3, 20, and 23. The Tsujii reference taken alone and/or in view of Williamson simply does not suggest, teach or disclose the patentably distinct limitation of:

a range extender application which executes without any hardware modification to the mobile device, the range extender application operable for extending a physical range of at least the optical transmitter by taking each message bit sent by the software application and converting the message bit to a set of a plurality of optical transmission pulses to be

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<sup>1</sup> Applicant makes no statement whether such combination is even proper.

placed on the transmit stack for optical transmission via the optical transmitter to the external device.

The Examiner recites 35 U.S.C. §103. The Statute expressly requires that obviousness or non-obviousness be determined for the claimed subject matter “as a whole,” and the key to proper determination of the differences between the prior art and the present invention is giving full recognition to the invention “as a whole.” The limitations taken “as a whole” in independent claims 1, 20, and 23 are not present in Tsujii taken alone and/or in view of Williamson.

Further, Applicant submits that the combination of Tsujii and/or in view of Williamson *teaches away* from “range extender application which executes without any hardware modification to the mobile device”. Tsujii and Williamson both require unique hardware not found on off-the-shelf mobile consumer devices including PDAs (personal data assistant), a 3Com Palm Pilot compatible device, and a Windows CE based devices. See Tsujii at least at FIGs 1 and 2 and Williamson at least at FIGS 5-7. Both Tsujii and Williamson specifically require specialized hardware and therefore *teach away* “without any hardware modification to the mobile device”. Accordingly, independent claims 1, 3, 20 and 23 distinguish over Tsujii taken alone and/or in view of Williamson for this reason as well.

Moreover, the Federal Circuit has consistently held that when a §103 rejection is based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference, such a proposed modification is not proper and the *prima facie* case of obviousness can not be properly made. See *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Here the intent, purpose and function of Tsujii taken alone and/or in view of Williamson is the specialized hardware, in contrast the intent and purpose of the present invention is extending the communication range of a mobile device “without any hardware modification to the mobile device”. The present invention inserts itself between the IRDA device driver and the user application to remain compatible with both the mobile hardware and the user application. Not only does the present invention eliminate the need to integrate specialized hardware, the present invention is compatible with existing user applications.. Further, the present invention can increase the number of bits used in the extender application depending on factors such as distance and noise. The combination of Tsujii and Williamson, as suggested by the Examiner, destroys the intent and purpose of specialized

hardware. Accordingly, the present invention is distinguishable over Tsijii taken alone or in view of Williamson for this reason as well.

Continuing further, when there is no suggestion or teaching in the prior art for

executing a range extender application which executes without any hardware modification to the user device, the range extender application operable for extending a physical range of the optical transmitter by taking each message bit sent by the software application and converting the message bit to a set of a plurality of optical transmission pulses to be placed on a transmit stack for transmission via the optical transmitter to another device

the suggestion can not come from the Applicant's own specification. The Federal Circuit has repeatedly warned against using the Applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings of the prior art. See MPEP §2143 and Grain Processing Corp. v. American Maize-Products, 840 F.2d 902, 907, 5 USPQ2d 1788 1792 (Fed. Cir. 1988) and In re Fitch, 972 F.2d 160, 12 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). The prior art reference Tsjuui taken alone and/or in view of Williamson does not even suggest, teach nor mention an extender applications for converting a message bit to a plurality of optical transmissions. Accordingly, independent claims 1, 3, 20, and 23 distinguish over Tsjuui taken alone and/or in view of Williamson for this reason as well.

For the foregoing reasons, independent claims 1, 3, 20 and 23 as amended distinguish over Tsjuui taken alone and/or in view of Williamson. Claims 2, 9 depend from independent claims 1 and 3 respectively. Since dependent claims contain all the limitations of the independent claims, claims 2 and 9 distinguish over Tsjuui taken alone and/or in view of Williamson, as well, and the Examiner's rejection should be withdrawn.

Rejection under 35 U.S.C. §103(a) Tsujii in view of Williamson and Prior Art

As noted above, the Examiner rejected claims 4, 21, and 24 under 35 U.S.C. § 103(a) as being unpatentable over Tsujii et al (US Patent No. 4,397,042) in view of Williamson et al (US Patent No. 5,659,299) and further view of Prior Art Figure 1.<sup>2</sup> As noted above, in the section entitled “Rejection under 35 U.S.C. §103(a) Tsujii in view of Williamson and Prior Art” independent claims 3, and 20 and 23 have been amended to clarify the present invention over Tsujii and/or Williams and/or in view of Prior Art Figure 1.

For the foregoing reasons, independent claims 1, 3, 20 and 23 as amended distinguish over Tsujii taken alone and/or in view of Williamson and/or Prior Art of FIG. 1. Claims 4, 21, and 24 depend from independent claims 1, 3, 20 and 23 respectively. Since dependent claims contain all the limitations of the independent claims, claims 4, 21 and 24 distinguish over Tsujii taken alone and/or in view of Williamson and/or in view of Prior Art of FIG. 1, as well, and the Examiner’s rejection should be withdrawn.

Rejection under 35 U.S.C. §103(a) Tsujii in view of Williamson and Haartsen

As noted above, the Examiner rejected claims 5-8, 22, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Tsujii et al (US Patent No. 4,397,042) in view of Williamson et al (US Patent No. 5,659,299) and in further view of Haartsen et al. (US Patent No. 6,519,236).<sup>3</sup> As noted above, in the section entitled “Rejection under 35 U.S.C. §103(a) Tsujii in view of Williamson and Prior Art” independent claims 3, and 20 and 23 have been amended to clarify the present invention over Tsujii and/or Williams and/or in view of Haartsen.

For the foregoing reasons, independent claims 1, 3, 20 and 23 as amended distinguish over Tsujii taken alone and/or in view of Williamson and/or in view of Haartsen. Claims 5-8, 22 and 25 depend

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<sup>2</sup> Applicant makes no statement whether such combination is even proper.

<sup>3</sup> Applicant makes no statement whether such combination is even proper.

from independent claims 1, 9, 20 and 23 respectively. Since dependent claims contain all the limitations of the independent claims, claims 5-8, 22 and 25 distinguish over Tsujii taken alone and/or in view of Williamson, and/or in further view of Haartsen as well, and the Examiner's rejection should be withdrawn.

### **CONCLUSION**

The remaining cited references have been reviewed and are not believed to affect the patentability of the claims as amended.

In this Response, Applicant has amended certain claims. In light of the Office Action, Applicant believes these amendments serve a useful clarification purpose, and are desirable for clarification purposes, independent of patentability. Accordingly, Applicant respectfully submits that the claim amendments do not limit the range of any permissible equivalents.

Applicant acknowledges the continuing duty of candor and good faith to disclosure of information known to be material to the examination of this application. In accordance with 37 CFR §1.56, all such information is dutifully made of record. The foreseeable equivalents of any territory surrendered by amendment are limited to the territory taught by the information of record. No other territory afforded by the doctrine of equivalents is knowingly surrendered and everything else is unforeseeable at the time of this amendment by the Applicant and his attorneys.



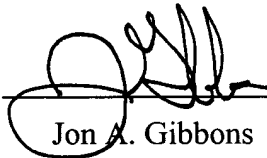
Applicant respectfully submits that all of the grounds for rejection stated in the Examiner's Office Action have been overcome, and that all claims in the application are allowable. No new matter has been added. It is believed that the application is now in condition for allowance, which allowance is respectfully requested.

**PLEASE CALL** the undersigned if that would expedite the prosecution of this application.

Respectfully submitted,

Date: September 1, 2004

By:



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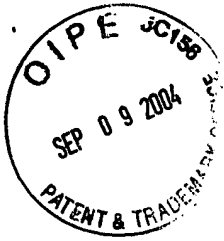
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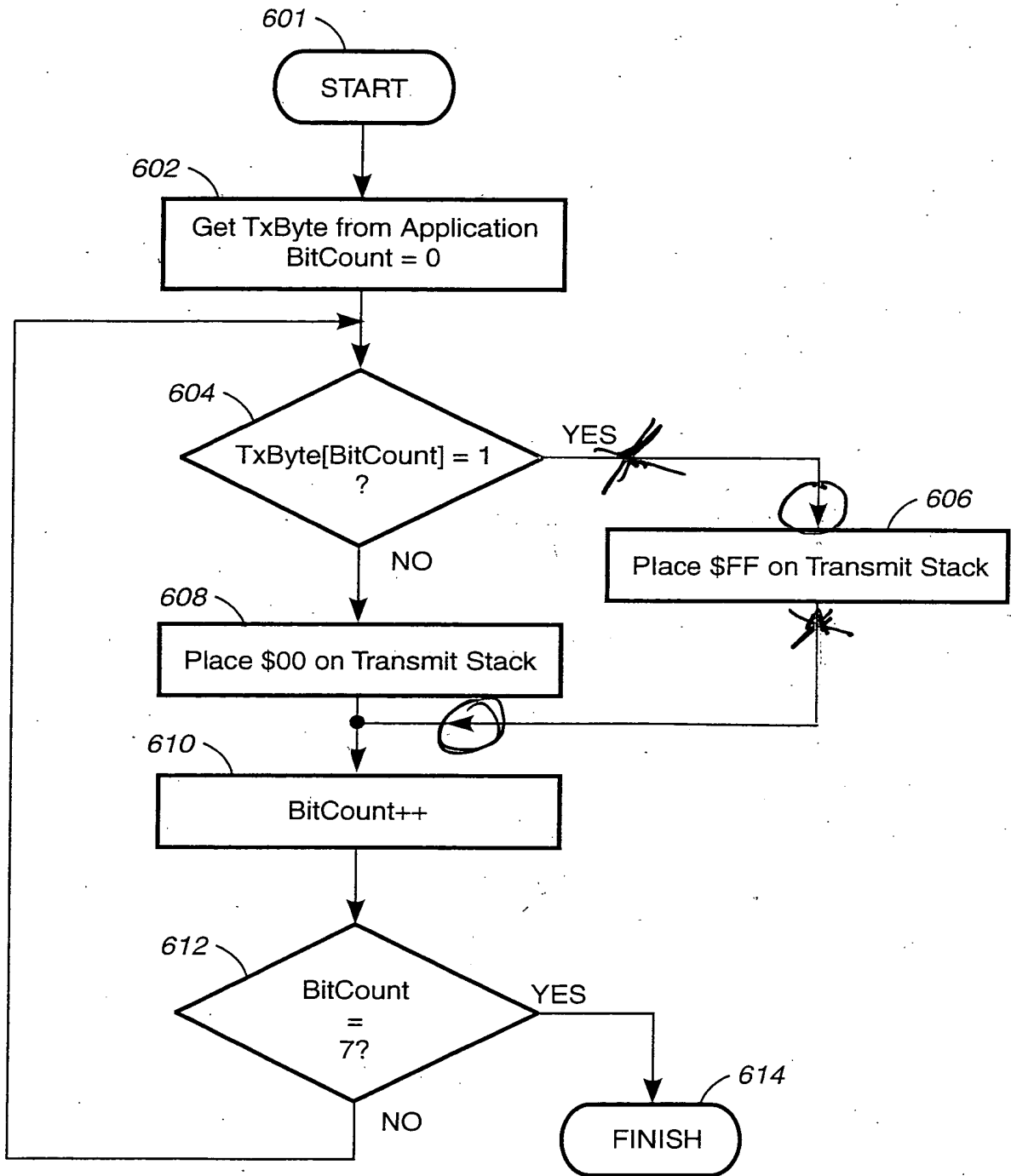


## **ANNOTATED SHEETS SHOWING CHANGES**

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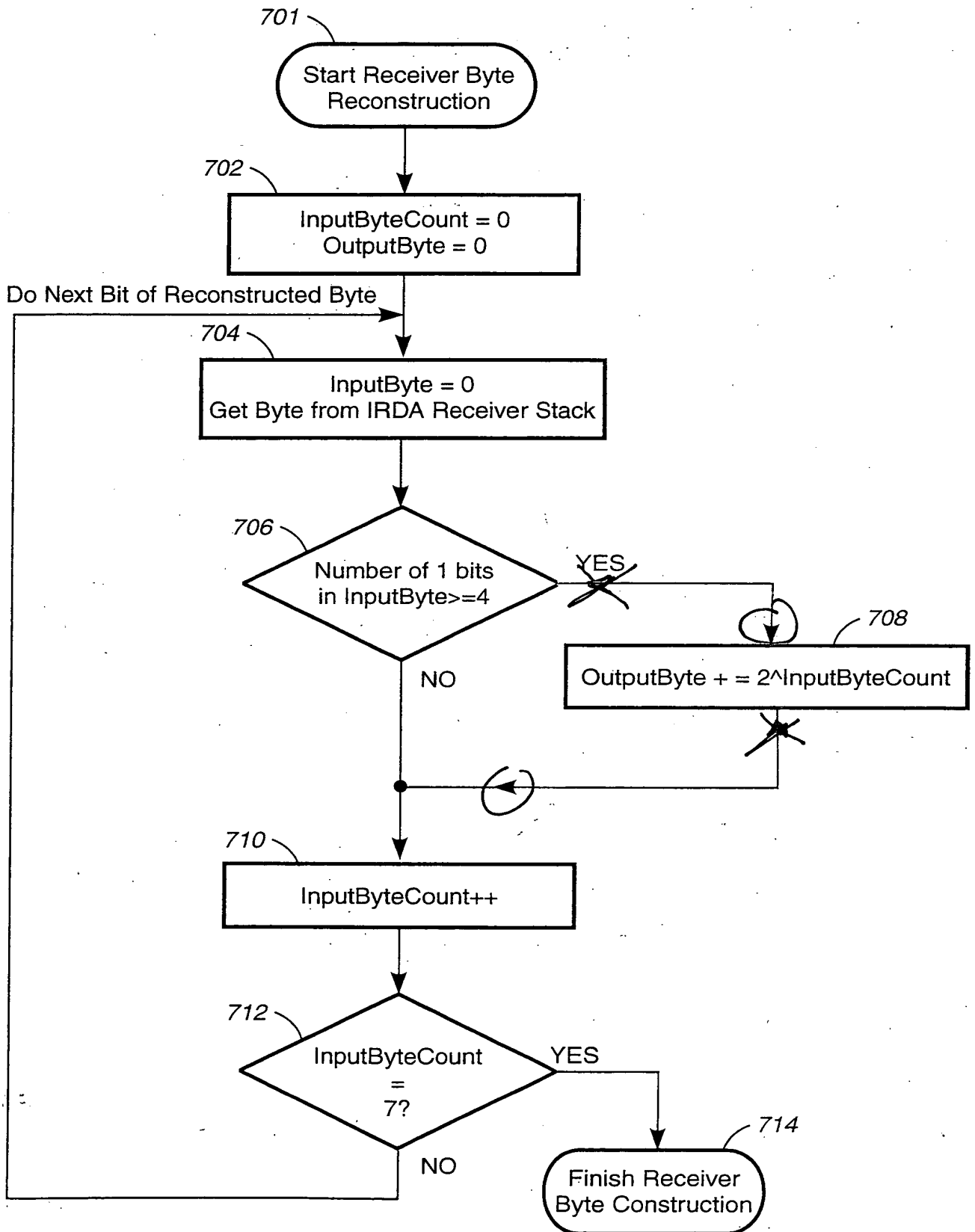
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**FIG. 6**





7/8



700

FIG. 7